Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

In the claims:

Claim 1 (Currently Amended): A method of examining a structure formed on a semiconductor wafer, the method comprising:

directing an incident beam at the structure at an incidence angle and an azimuth angle;

scanning the incident beam over a range of azimuth angles to obtain an azimuthal scan of the structure; ~~and~~

measuring the cross polarization components of diffracted beams during the azimuthal scan; and

determining a zero azimuth position based on the measured cross polarization components, wherein the cross polarization components are zero at the zero azimuth position.

Claim 2 (Original): The method of claim 1, wherein the incident beam is polarized at a polarization angle of zero or 90 degrees.

Claim 3 (Canceled).

Claim 4 (Currently Amended): The method of claim [[3]] 1, wherein the range of azimuth angles is around the zero azimuth position.

Claim 5 (Currently Amended): The method of claim [[3]] 1, further comprising:

obtaining a measured diffraction signal using an azimuth angle to be used in optical metrology of the structure, wherein the azimuthal scan is performed before the measured diffraction signal is obtained; and

detecting azimuthal misalignment of the measured diffraction signal to a simulated diffraction signal based on the determined zero azimuth position.

Claim 6 (Original): The method of claim 5, wherein the simulated diffraction signal was generated using an assumed zero azimuth position, and wherein azimuthal misalignment of the measured diffraction signal is detected when the determined zero azimuth position differs from the assumed zero azimuth position.

Claim 7 (Currently Amended): ~~The method of claim 1, wherein the structure is a contact hole array, and further comprising:~~ A method of examining a structure formed on a semiconductor wafer, wherein the structure is a contact hole array, the method comprising:

directing an incident beam at the structure at an incidence angle and an azimuth angle;

scanning the incident beam over a range of azimuth angles to obtain an azimuthal scan of the structure;

measuring the cross polarization components of diffracted beams during the azimuthal scan; and

determining whether a contact hole in the contact hole array is asymmetric based on the ~~azimuthal scan~~ measured cross polarization components.

Claim 8 (Original): The method of claim 7, wherein the contact hole is determined to be asymmetric when the cross polarization components are not zero at an azimuth angle of one or more of 45, 135, 225, and 315 degrees.

Claim 9 (Original): The method of claim 7, further comprising:

testing a lens used in lithography based on determining whether the contact hole in the contact hole array is asymmetric.

Claim 10 (Currently Amended): ~~The method of claim 1, further comprising:~~ A method of examining a structure formed on a semiconductor wafer, the method comprising:

directing an incident beam at the structure at an incidence angle and an azimuth angle;

scanning the incident beam over a range of azimuth angles to obtain an azimuthal scan of the structure;

measuring the cross polarization components of diffracted beams during the azimuthal scan; and

determining rotation of the structure based on the ~~azimuthal scan~~ measured cross polarization components.

Claim 11 (Original): The method of claim 10, wherein rotation of the structure is determined when the cross polarization terms reach a minimum but are not zero, and the cross polarization terms are not symmetric about the minimum.

Claim 12 (Currently Amended): The ~~further~~ method of claim 11, further comprising:

obtaining a spectrum at two azimuth angles symmetric about the minimum; and

determining a difference signal based the spectrum obtained at the two azimuth angles, wherein rotation of the structure is determined when the difference signal is not zero, and wherein a direction of the rotation is determined based on the sign of the difference signal.

Claim 13 (Currently Amended): A system for examining a three dimensional structure formed on a semiconductor wafer, the system comprising:

a source configured to direct an incident beam at the structure at an incidence angle and an azimuth angle,

wherein the incident beam is configured to be scanned over a range of azimuth angles to obtain an azimuthal scan of the structure; ~~and~~

a detector configured to measure the cross polarization components of diffracted beams during the azimuthal scan; and

a processor configured to determine a zero azimuth position based on the measured cross polarization components, wherein the cross polarization components are zero at the zero azimuth position.

Claim 14 (Original): The system of claim 13, wherein the incident beam is polarized at a polarization angle of zero or 90 degrees.

Claim 15 (Canceled).

Claim 16 (Currently Amended): The system of claim ~~15~~ 13, wherein the range of azimuth angles is around the zero azimuth position.

Claim 17 (Currently Amended): The system of claim ~~15~~ 13, wherein a measured diffraction signal is obtained using an azimuth angle to be used in optical metrology of the structure, wherein the azimuthal scan is performed before the measured diffraction signal is obtained, and wherein azimuthal misalignment of the measured diffraction signal to a simulated diffraction signal is detected based on the determined zero azimuth position.

Claim 18 (Original): The system of claim 17, wherein the simulated diffraction signal was generated using an assumed zero azimuth position, and wherein azimuthal misalignment of the measured diffraction signal is detected when the determined zero azimuth position differs from the assumed zero azimuth position.

Claim 19 (Currently Amended): ~~The system of claim 13, wherein the 3-D structure is a contact hole array, and wherein a contact hole in the contact hole array is determined to be asymmetric based on the azimuthal scan.~~ A system for examining a three dimensional structure formed on a semiconductor wafer, wherein the three dimensional structure is a contact hole array, the system comprising:

a source configured to direct an incident beam at the structure at an incidence angle and an azimuth angle,

wherein the incident beam is configured to be scanned over a range of azimuth angles to obtain an azimuthal scan of the structure;

a detector configured to measure the cross polarization components of diffracted beams during the azimuthal scan; and

a processor configured to determine whether a contact hole in the contact hole array is asymmetric based on the measured cross polarization components.

Claim 20 (Original): The system of claim 19, wherein the contact hole is determined to be asymmetric when the cross polarization components are not zero at an azimuth angle of one or more of 45, 135, 225, and 315 degrees.

Claim 21 (Original): The system of claim 19, wherein a lens used in lithography is tested based on determining whether the contact hole in the contact hole array is asymmetric.

Claim 22 (Currently Amended): ~~The system of claim 13, wherein rotation of the structure is determined based on the azimuthal scan.~~ A system for examining a three dimensional structure formed on a semiconductor wafer, the system comprising:

a source configured to direct an incident beam at the structure at an incidence angle and an azimuth angle,

wherein the incident beam is configured to be scanned over a range of azimuth angles to obtain an azimuthal scan of the structure;

a detector configured to measure the cross polarization components of diffracted beams during the azimuthal scan; and

a processor configured to determine rotation of the structure based on the measured cross polarization components.

Claim 23 (Original): The system of claim 22, wherein rotation of the structure is determined when the cross polarization terms reach a minimum but are not zero, and the cross polarization terms are not symmetric about the minimum.

Claim 24 (Original): The system of claim 23, wherein a spectrum at two azimuth angles symmetric about the minimum is obtained, and wherein a difference signal is determined based the spectrum obtained at the two azimuth angles, wherein rotation of the structure is determined when the difference signal is not zero, and wherein a direction of the rotation is determined based on the sign of the difference signal.

Claim 25 (Currently Amended): A method of examining a structure formed on a semiconductor wafer, the method comprising:

scanning an incident beam over a range of azimuth angles to obtain an azimuthal scan of the structure;

measuring the cross polarization components of diffracted beams during the azimuthal scan; and

based on the ~~azimuthal scan~~ measured cross polarization components, determining one or more of conditions including:

a) a zeroth azimuth position, wherein the cross polarization components are zero at the zero azimuth position;

b) symmetry of a contact hole in a contact hole array; and

c) rotation of the structure.